

IWAKI
ELECTROMAGNETIC
METERING
PUMPS

EHN



The latest electromagnetic metering pump equipped with digital controller & multi-voltage



EHN Series is the latest electromagnet drive & diaphragm type metering pump.

Pump head and driving mechanism employ those of experienced EH-R Series pumps while control unit is newly developed. Multi-voltage from 100 to 240V and digitized EHN Series pump is easy to operate in a variety of chemical feeding application.

Pump head variation

Wide variety of standard pump head (VC/VH/PC/PH/PP/FC/SH), automatic air vent type (NAE) and high compression type (55 model).

• Refer to page 5 for details of NAE and 55.



VC/VH type

PC/PH/PP type

FC type

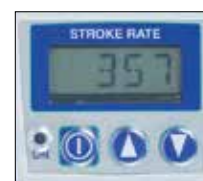
SH type

High resolution

Thanks to digitized controller, stroke speed can be adjusted by 1 spm step from 1 to 360 spm. Combined with stroke length adjustment, you can do the fine adjustment from very small flow to maximum flow rate.



Stroke length adjusting dial



Control panel



Control unit

The highly-functional EHN-YN which is equipped with digital and analogue inputs are added to the standard production line as well as EHN-R.

Multi-voltage power source

Multi-voltage power source from AC100 to 240V for all models. You are now free from worrying about power voltage.

Air vent valve

Standard pump head models (VC/VH/PC/PH/PP) equip air vent valve.

Air in the pump chamber can be easily released by turning knob.



Water/dust-proof

Each unit such as driving unit and control unit is sealed to make the pump IP66 equivalent water/dust-proof.

• Do not install pump outdoor.

Multi hose connection

The use of a new hose stopper eliminates a twist in tube connection.

- Except for the following
 Wet-end material: FC type, SH type
 Controller: EHN-R/YN Flow Checker corresponding type
 Accessories: Check valve CS type,
 Backflow prevention valve,
 Back pressure valve, Flow checker,
 T-joint

Various combinations of the controller and the pump head meet a wide range of application requirement.

Basic type

EHN-R series

The basic model of the EHN series. Key lock function prevents erroneous operation after controller programming. The mounted controller provides EXT and STOP functions. Multiply and dividing operations becomes newly available by EXT functions and allows you to delicate pump control.



Controller function

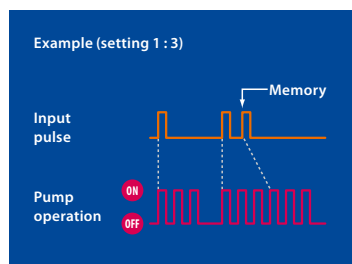
Manual operation

Pump run/stop and stroke rate setting (1 to 360 spm) can be done by keys. Stroke rate can be set either when pump is running or stopped.

EXT operation

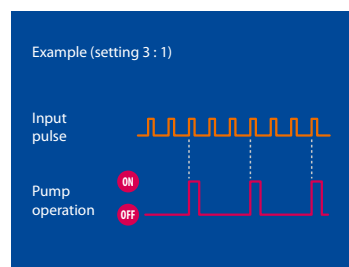
Multiply (1 : n)

Pump makes multiply operation by external pulse signal. Pump makes "n" times shots against one pulse signal input. "n" can be set from 1 to 999. Pulses which came while operation are put in memory up to 255 pulses.



Dividing (n : 1)

Pump makes dividing operation by external pulse signal. Pump makes one shot against "n" times pulse input. "n" can be set from 1 to 999.

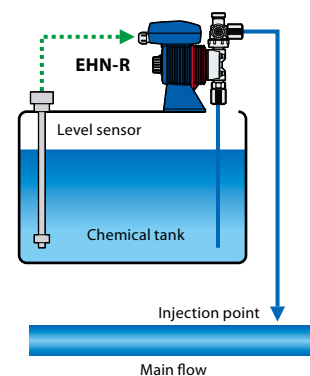


• If "n" is set at 1, pump makes synchronous operation. If pump is connected to optionally available EH controller, please use this function.

STOP function

Pump stops by external contact signal. Pump operates when stop signal input is released. This function enables pump ON/OFF control. This is convenient function when used in combination with level sensor.

• It is possible to operate pump while STOP signal comes in (Change over with keys). In this case, when pump is operated in EXT mode, pump operates synchronous with EXT signal input while STOP signal is coming in.



Level sensor watches water level in tank, and stops pump when water level comes to lower limit.

Electromagnetic metering pump for sodium hypochlorite

EHN-YN series

- The features of both the EHN-Y and the FCM flow checker are integrated into the EHN-YN.
- Auxiliary functions including keypad lock and priming operation (max operation with the up and down keys depressed) are provided to support users.
- The FCM flow checker is optionally available.
- The pump gives an alarm and starts running at full speed(360spm), removing entrained air or clogging, when the FCM does not detect a suction line flow. Operation at a set speed or programmed behaviour will be restored after the problems are removed.
- The following three behavioural patterns are available.
PA mode/PA+AL mode/PA+AL+RE mode
- Monitoring/alarming a suction-line flow ensures safer pump operation.



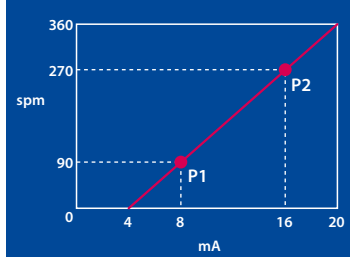
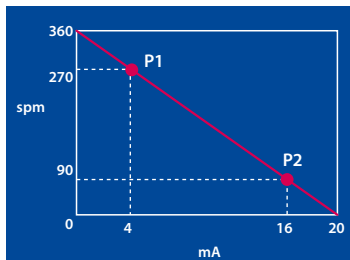
Controller function

Manual operation

Pump run/stop and stroke rate setting (1 to 360 spm) can be done by keys. Stroke rate can be set either when pump is running or stopped.

Analogue input operation

Proportional control of spm by programming 2 points between 0-20mA.



EXT operation

Multiply (1 : n)

Pump makes multiply operation by external pulse signal. Pump makes "n" times shots against one pulse signal input. "n" can be set from 1 to 999. Pulses which came while operation are put in memory up to 255 pulses.

Dividing (n : 1)

Pump makes dividing operation by external pulse signal. Pump makes one shot against "n" times pulse input. "n" can be set from 1 to 999.

- If "n" is set at 1, pump makes synchronous operation. If pump is connected to optionally available EH controller, please use this function.

STOP function

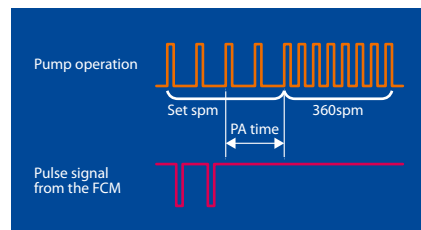
Pump stops by external contact signal. Pump operates when stop signal input is released. This function enables pump ON/OFF control. This is convenient function when used in combination with level sensor.

- It is possible to operate pump while STOP signal comes in (Change over with keys). In this case, when pump is operated in EXT mode, pump operates synchronous with EXT signal input while STOP signal is coming in.

Auto restoration

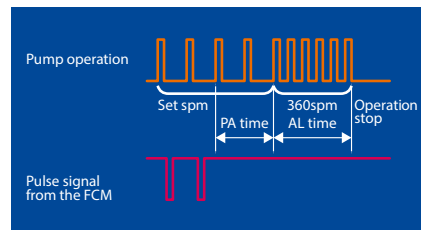
PA mode

When the FCM does not detect a suction-line flow for the PA time, the pump starts to run at full speed (360spm).



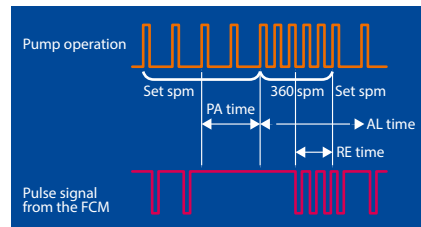
PA+AL mode

When the FCM does not detect a suction-line flow for the PA time, the pump starts to run at full speed (360spm) for the AL time and stops afterward.



PA+AL+RE mode

When the pump starts to run at full speed (360spm) for the AL time and the FCM keeps detecting a suction-line flow over the RE time, operation at a set speed or programmed behaviour will be restored.



The pump can be specialized for the need of a special chemical transfer.

The optimum for gaseous liquid feeding

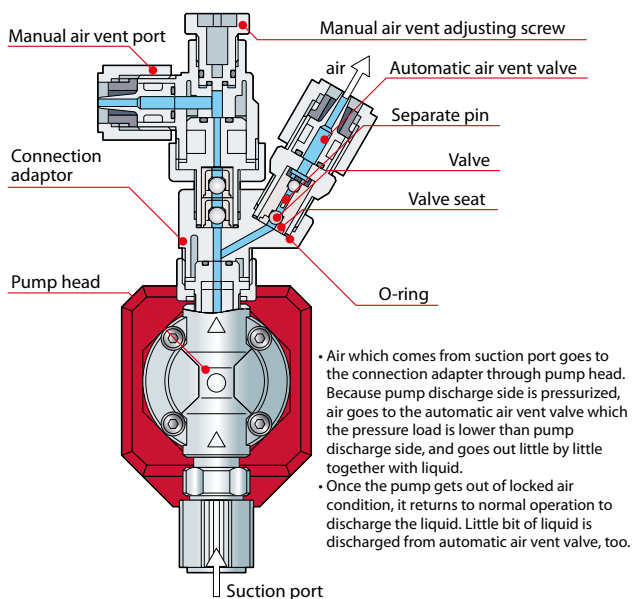
Automatic air vent type

EHN-NAE

This type equips automatic air vent mechanism. An air vent valve built-in pump chamber enables reliable air venting. Also equipped manual air vent valve enables easy pressure release in discharge piping. Gaseous liquid such as sodium hypochlorite can be injected without gas locking.



Principle of operation (NAE type)



Wet-end material

Material code	VC	VC-S6	VC-HC	VH
Pump head	PVC			
Connection adaptor	PVC			
Separate pin	Titanium	SUS316	Hastelloy C276	
Valve	Alumina ceramic			Hastelloy C276
Valve seat	FKM		EPDM	
O-ring	FKM		EPDM	

Note: Automatic air vent valve is zirconia ceramic.
• VH type is a C16 type only.

Specification

Model	EHN-B11-NAE	EHN-B16-NAE	EHN-C16-NAE	EHN-C21-NAE	
Max. discharge capacity	mL/min	30	55	65	110
Discharge capacity per shot	mL/shot	0.04 - 0.08	0.08 - 0.15	0.07 - 0.18	0.12 - 0.31
Max. discharge pressure	MPa	1.0	0.7	1.0	0.7
Stroke length adjustable range	%	50 - 100		40 - 100	
Stroke rate	spm	1 - 360			
Connection (Hose dia.)	Ø4×Ø9, Ø4×Ø6				
Power voltage	AC100 - 240V 50/60Hz single phase				
Accessory	Check valve CAN-1, PVC braided hose 3m				

Operating condition : Liquid temperature 0 - 40°C. Ambient temperature 0 to 40°C
• Max. discharge capacity represents the figure when pumping clear water at ambient temperature at max. discharge pressure. Pump discharges more liquid than shown above if it runs at lower discharge pressure. If discharge pressure is 0.12MPa or lower, be sure to use check valve to avoid over-feeding.

The optimum for sodium hypochlorite feeding

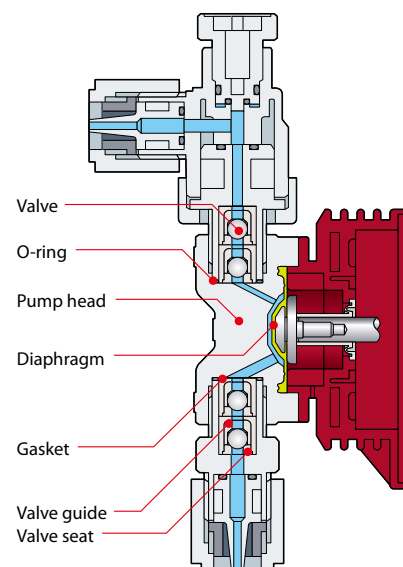
High compression head type

EHN-55

Increased compression ratio due to minimized dead volume in pump chamber.



Construction (55 type)



Wet-end material

Material code	VC
Pump head	PVC
Valve	Alumina ceramic
Valve seat	FKM
Valve guide	PVC
Gasket	PTFE
O-ring	FKM
Diaphragm	PTFE coated EPDM

Specification

Model	EHN-B11VC-55	EHN-B21VC-55	
Max. discharge capacity	mL/min	38	100
Discharge capacity per shot	mL/shot	0.05 - 0.11	0.14 - 0.28
Max. discharge pressure	MPa	1.0	0.4
Stroke length adjustable range	%	50 - 100	
Stroke rate	spm	1 - 360	
Connection (Hose dia.)	Ø4×Ø9, Ø4×Ø6		
Power voltage	AC100 - 240V 50/60Hz single phase		
Accessory	Check valve CAN-1, PVC braided hose 3m		

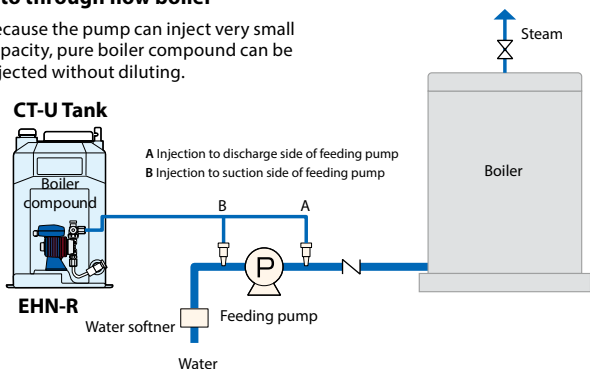
Operating condition : Liquid temperature 0 - 40°C. Ambient temperature 0 to 40°C
• Max. discharge capacity represents the figure when pumping clear water at ambient temperature at max. discharge pressure. Pump discharges more liquid than shown above if it runs at lower discharge pressure. If discharge pressure is 0.12MPa or lower, be sure to use check valve to avoid over-feeding.

The EHN series meets the needs of various chemical feeding in water treatment fields.

Injection of boiler compound into through flow boiler

EHN-R

Because the pump can inject very small capacity, pure boiler compound can be injected without diluting.

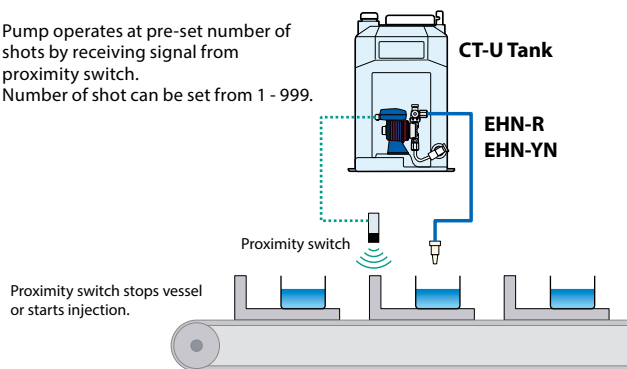


Metering dose

EHN-R

EHN-YN

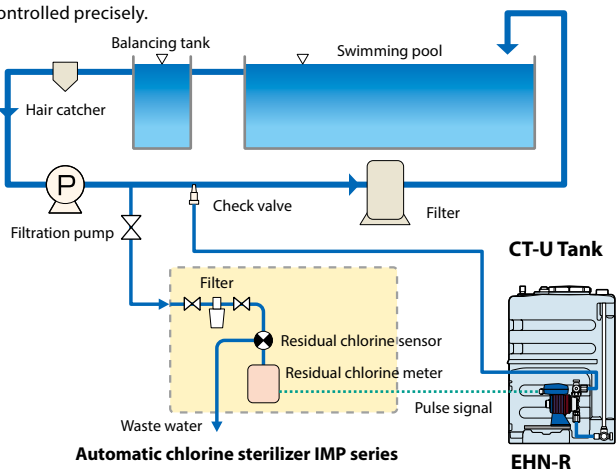
Pump operates at pre-set number of shots by receiving signal from proximity switch. Number of shot can be set from 1 - 999.



Sterilizing of swimming pool water (Residual chlorine concentration control)

EHN-R

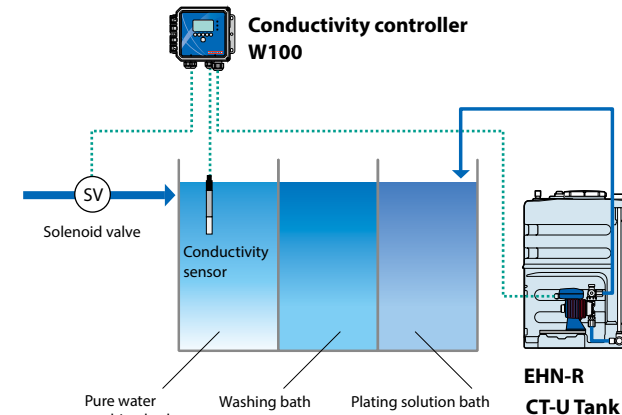
Continuous injection of sodium hypochlorite. Combined with Chlorine sterilizer, residual chlorine concentration can be controlled precisely.



• Please refer to the single goods catalog of the separate volume for details of the IMP series.

Electroless plating system (Planting solution supply/ Conductivity control of cleaning water)

EHN-R



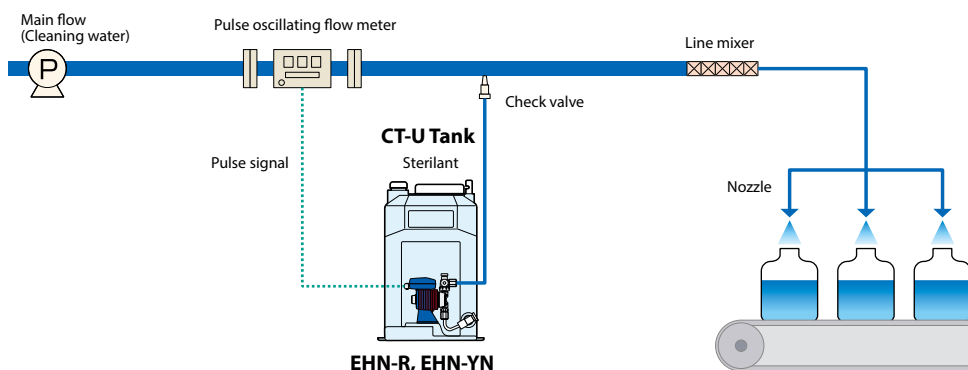
• Please refer to the single goods catalog of the separate volume for details of the TC-300.

Sterilizing of distilled water (Proportional mixing of cleaning water and sterilizing agent)

EHN-R

EHN-YN

Pump injects sterilizing agent in proportion to the flow rate of cleaning water by the signal from pulse oscillating flow meter. Same mixing concentration can be kept regardless of the change of cleaning water flow rate.



Optional accessories

Check valve

Mount the check valve at the end of discharge hose for the prevention of over feeding, backflow, and siphon action.
Note: CBN type is an option.

CAN type: Standard accessory



CBN type: In-line type check valve.
Install it between hoses.



CS type: Stainless type for high liquid temperature.
General model and boiler model are available.



Model	Connection		Set Press		Material			Applicable pump	Wet end material code				
	IN	OUT	MPa		Body	Spring	O-ring						
CAN-1VC-M	04x09 04x06		0.17	±0.04	PVC	Hastelloy C276	FKM	B11, 16, 21 C16, 21	VC				
CAN-1VC-3	06x08								VH				
CAN-1VC-23	06x012		VC										
CAN-1VE-M	04x09 04x06		VH										
CAN-1VE-3	06x08		VC										
CAN-1VCL-M	04x09 04x06		VH										
CAN-2VCL-M			0.05	+0.04 -0.03	GFRPP CFRPP	Hastelloy C276	FKM	B31, C36	VH				
CAN-2VEL-M	08x013								VH				
CAN-2VC-M	09x012		VH										
CAN-2VE-M			VH										
CAN-1V-M	04x09		0.17	±0.04					GFRPP CFRPP	Hastelloy C276	FKM	B11, 16, 21 C16, 21	PC
CAN-1E-M	04x06												PH
CAN-2VL-M			PC										
CAN-2EL-M	08x013		PH										
CAN-2VM-M	09x012		PC										
CAN-2E-M			PH										
CAN-1VCH-M	04x09 04x06		0.34	±0.04	GFRPP CFRPP	Hastelloy C276	FKM	B11, 16, 21 C16, 21	VC				
CAN-1VCH-23	06x012								VH				
CAN-1VEH-M			PC										
CAN-1VH-M	04x09		PH										
CAN-1EH-M	04x06												
CBN-1VC-M	04x09 04x06	04x09 04x06	0.17	±0.04	PVC	Hastelloy C276	FKM	B11, 16, 21 C16, 21	VC				
CBN-1VC-3	06x08	06x08							VH				
CBN-1VC-23	06x012	06x012	VC										
CBN-1VC-24	05x08	05x08	VH										
CBN-1VE-M	04x09 04x06	04x09 04x06	VC										
CBN-1VE-3	06x08	06x08	VH										
CBN-2VCL-M			0.05	+0.04 -0.03	GFRPP CFRPP	Hastelloy C276	FKM	B31, C36	VC				
CBN-2VEL-M	08x013	08x013							VH				
CBN-2VC-M	09x012	09x012	VC										
CBN-2VE-M			VH										
CBN-1V-M	04x09	04x09	0.17	+0.05 -0.04					GFRPP CFRPP	Hastelloy C276	FKM	B11, 16, 21 C16, 21	PC
CBN-1V-3	06x08	06x08											PH
CBN-1E-M	04x09	04x09	PC										
CBN-1E-3	06x08	06x08	PH										
CBN-2VL-M			0.05	+0.04 -0.03	GFRPP CFRPP	Hastelloy C276	FKM	B31, C36					PC
CBN-2EL-M	08x013	08x013											PH
CBN-2V-M	09x012	09x012	PC										
CBN-2E-M			PH										
CBN-1VCH-M	04x09	04x09	0.34	±0.04					GFRPP CFRPP	Hastelloy C276	FKM	B11, 16, 21 C16, 21	VC
CBN-1VCH-3	06x08	06x08											VH
CBN-1VCH-23	06x012	06x012	VC										
CBN-1VCH-24	05x08	05x08	VH										
CBN-1VEH-M	04x09	04x09	VC										
CBN-1VEH-3	06x08	06x08	VH										
CBN-1VH-M	04x09	04x09	0.05	+0.05 -0.04	GFRPP CFRPP	Hastelloy C276	FKM	B11, 16, 21 C16, 21	PC				
CBN-1VH-7	014"x038"	014"x038"							PH				
CBN-1EH-M	04x09	04x09	VC										
CBN-1EH-7	014"x038"	014"x038"	VH										
CCA-1FC-4x6	04x06 Hose	R3/8, R1/2 Thread	0.04	or more					PVDF		FKM	B11, 16, 21 C16, 21	FC
CS-1S	R1/4 Thread	R1/4 Thread	0.2	±0.03					SUS316			B11, 16, 21 C21, 31 C36	SH
CS-1SL			0.05	±0.03	SUS316								
CS-1E													
CS-1E-2	04x06	04x06	0.12	±0.04	SUS304		EPDM	B11, 16, 21 C16, 21	VH/PH				

Dampner

Mount the accumulator on discharge side hose to reduce vibration comes from pulsation.



Model	Connection Hose	Capacity	Material			Allowable liquid/ dampner pressure	Use
			Body	Vladar	O-ring		
AQ-10TV	04x09	164mL	PVDF	FKM	FKM	0.05 - 0.5 MPa	Acid
AQ-10TE	04x06			EPDM	EPDM		Alcaline
AQ-10TV-4	08x013			FKM	FKM		Acid
AQ-10TE-4				EPDM	EPDM		Alcaline

Hose flange

The hose flange is the adapter for connecting hose to flange. Hose flange with the check valve is also available.



Model	Connection		Material			Applicable pump	Wet end material code					
	Hose	Flange	Body	O-ring	Check valve model							
15FCAN-1VC-M	04x09	JIS10K15AFF	PVC	FKM	CAN-1VC	B11, 16, 21 C16, 21	VC					
15FCAN-1VE-M	04x06			EPDM	CAN-1VE	VH						
15FCAN-2VC-M	08x013			FKM	CAN-2VC	VC						
15FCAN-2VE-M	09x012			EPDM	CAN-2VE	VH						
15FVNxMS	04x09			JIS10K20AFF	PVC	FKM	-	B11, 16, 21 C16, 21	VC			
15FENxMS	04x06					EPDM		VH				
15FVNxML	08x013					FKM		VC				
15FENxML	09x012					EPDM		VH				
20FCAN-1VC-M	04x09					JIS10K25AFF		PVC	FKM	CAN-1VC	B11, 16, 21 C16, 21	VC
20FCAN-1VE-M	04x06								EPDM	CAN-1VE	VH	
20FCAN-2VC-M	08x013			FKM	CAN-2VC		VC					
20FCAN-2VE-M	09x012			EPDM	CAN-2VE		VH					
20FVNxMS	04x09	JIS10K25AFF	PVC	FKM	-		B11, 16, 21 C16, 21		VC			
20FENxMS	04x06			EPDM			VH					
20FVNxML	08x013			FKM			VC					
20FENxML	09x012			EPDM			VH					
20FVNxMS	04x09			JIS10K25AFF			PVC		FKM	-	B11, 16, 21 C16, 21	VC
20FENxMS	04x06								EPDM		VH	
25FVNxML	08x013	FKM	VC									
25FENxML	09x012	EPDM	VH									

Hose joint

The hose joint offers a secure connection between hose and pipe.



Thread connection

Model	Connection		Material		Applicable pump	Wet end material code
	Hose	Thread	Body	O-ring		
V4VN-3/8-M	04x09 04x06	R3/8	PVC	FKM	B11, 16, 21 C16, 21	VC
V4EN-3/8-M				EPDM		VH
V4VN-1/2-M		R1/2		FKM		VC
V4EN-1/2-M				EPDM		VH
V8VN-3/8-M	08x013 09x012	R3/8	PVC	FKM	B31 C31, 36	VC
V8EN-3/8-M				EPDM		VH
V8VN-1/2-M		R1/2		FKM		VC
V8EN-1/2-M				EPDM		VH

VP plumbing connection

Model	Connection		Material		Applicable pump	Wet end material code	
	Hose	VP plumbing	Body	O-ring			
V4VN-13-M	04x09 04x06	VP13	PVC	FKM	B11, 16, 21 C16, 21	VC	
V4EN-13-M				EPDM		VH	
V4VN-16-M				VP16		FKM	VC
V4EN-16-M						EPDM	VH
V4VN-20-M		VP20		FKM		VC	
V4EN-20-M				EPDM		VH	
V8VN-13-M				VP13		FKM	VC
V8EN-13-M						EPDM	VH
V8VN-16-M	08x013 09x012	VP16	PVC	FKM	B31 C31, 36	VC	
V8EN-16-M				EPDM		VH	
V8VN-20-M		VP20		FKM		VC	
V8EN-20-M				EPDM		VH	

Back pressure valve

The back pressure valve enhances the dosing accuracy and prevents backflow. Set pressure is adjustable.



Model	Connection		Set Press		Material ^{Note}			Applicable pump	Wet end material code
	IN	OUT	MPa		Body	Valve	O-ring		
BVC-1TV-4H	Ø4×Ø6 Hose	R3/8, R1/2 Thread	0.2	±0.02	PVDF	FKM	-	B11, 21 C21	FC
BVC-1TV-10H	Ø10×Ø12 Hose		0.1	±0.02				C36	
BVC-1TV-10H			0.2	±0.02				C31	
BVC-1PVL-4H	Ø4×Ø9 Hose	R3/8, R1/2 Thread	0.2	±0.02	PVC	FKM	FKM	B11, 16, 21 C16, 21	VC
BVC-1PEL-4H						EPDM	EPDM		VH
BVC-1PVL-8H	Ø8×Ø13 Hose	R3/8, R1/2 Thread				FKM	FKM	C31	VC
BVC-1PEL-8H						EPDM	EPDM		VH

Note: Gasket made in PTFE.

Multifunction valve

The multifunction valve functions as a back pressure valve, air vent valve, and relieve valve. The set pressure of the back pressure valve is fixed.



Model	Connection		Material			Wet end material code	
	Hose		Body	Diaphragm	O ring		
MFV-HTC	Ø4×Ø6, Ø6×Ø8, Ø9×Ø12, Ø10×Ø12, Ø14×Ø3/8, Ø3/8×Ø1/2, Ø6×Ø12, Ø5×Ø8		PVDF	PTFE+EPDM	FEPM	TC	
MFV-MTC							
MFV-LTC							

Strainer with a foot valve

Mount the strainer at the end of suction hose. The strainer with a foot valve prevents backflow and foreign matter interfusion. Inlet bore can be selected according to hose bore.



Model	Connection		Material			Applicable pump	Wet end material code	
	Hose	Strainer	Body	O-ring	Valve ball			
FSVN-1	Ø4×Ø9	Aflon	PVC	FKM	Alumina ceramic	B11, 16, 21 C16, 21	VC	
FSVN-2	Ø4×Ø6							
FSVN-3	Ø6×Ø8							
FSVN-4	Ø8×Ø13							
FSVN-5	Ø9×Ø12							
FSEN-1	Ø4×Ø9			EPDM	Hastelloy C276	B11, 16, 21 C16, 21	B31 C31, 36	VH
FSEN-2	Ø4×Ø6							
FSEN-3	Ø6×Ø8							
FSEN-4	Ø8×Ø13							
FSEN-5	Ø9×Ø12							
FSPEN-1	Ø4×Ø9			GFRPP	FKM	Alumina ceramic	B11, 16, 21 C16, 21	VC
FSPEN-2	Ø4×Ø6							
FSPEN-3	Ø6×Ø8							
FSPEN-4	Ø8×Ø13							
FSPEN-5	Ø9×Ø12							
FSPVN-1	Ø4×Ø9	FKM	Alumina ceramic	B11, 16, 21 C16, 21	B31 C31, 36	VC		
FSPVN-2	Ø4×Ø6							
FSPVN-3	Ø6×Ø8							
FSPVN-4	Ø8×Ø13							
FSPVN-5	Ø9×Ø12							

Mesh size is 20 mesh.

Foot valve with a strainer

Mount the foot valve at the end of suction hose. The foot valve with a strainer and a ceramic weight ball prevents backflow and foreign matter interfusion. Inlet bore can be selected according to hose bore.



Model	Connection		Material			Applicable pump	Wet end material code
	Hose	Strainer	Body	O-ring	Valve ball		
FSCN-1	Ø4×Ø9	PE	PVC	FKM	Alumina ceramic	B11, 16, 21 C16, 21	VC
FSCN-2	Ø4×Ø6						
FSCN-3	Ø6×Ø8						
FSCN-4	Ø8×Ø13						
FSCN-5	Ø9×Ø12						

Mesh size is 150 mesh.

T-joint

Use T-joint for a branch pipe.

Model	Connection		Material Body	Applicable pump	Wet end material code
	Hose				
TJ-4H	Ø4×Ø9	PVC	B11, 16, 21 / C16, 21	VC, VH	
TJ-8H	Ø8×Ø13				B31 / C31, 36



Reducing joint

Use the reducing joint to a connection between different bore hoses.



Model	Connection		Material		Applicable pump	Wet end material code
	IN	OUT	Body	O-ring		
HJVN-1/2	Ø4×Ø9	Ø4×Ø6	PVC	FKM	B11, 16, 21 C16, 21	VC
HJVN-1/18		Ø6×Ø11				
HJVN-2/3	Ø4×Ø6	Ø6×Ø8				
HJEN-1/2	Ø4×Ø9	Ø4×Ø6				
HJEN-1/18		Ø6×Ø11				
HJEN-2/3	Ø4×Ø6	Ø6×Ø8				

VH type is available as option.

Same bore hoses are available as option.

Flow counter/Controller

The pressure sensor detects pulsation to monitor the flow. Air lock and hose disconnection are also can be detected.



Flow counter

Model	Material			Applicable controller	Applicable pump	Wet end material code
	Sensor	Body	Rubber			
FCP-1VC	Alumina ceramic	PVC	FKM	FCU-01 S3D2-CK	B11, 16, 21 C16, 21	VC
FCP-1VE			EPDM			VH
FCP-1PC		GFRPP	FKM			PC
FCP-1PE			EPDM			PH

Controller

Model	Material				Applicable pump	Note
	Power voltage	Setting method	Output	Warnig time		
S3D2-CK	100 to 240VAC	DIN Rail	Relay output (1c)	0.1 - 1/1 - 10s	B11, 16, 21 / C16, 21	Omron product

Flow checker

The FCM flow checker monitors the suction-line flow and sends a signal to the pump at each shot. Its mounting position is beneath the pump inlet, so the FCM can detect a system upset under any piping or operating condition.



Model	FCM-VC-1	FCM-VC-2	FCM-VH-1	FCM-VH-2
Power voltage	5-24VDC			
Output	NPN open collector			
Max. power consumption (Load capacity)	8mA (15mA)			
Materials	Wet ends PVC			
	O-ring		FKM EPDM	
Min. discharge capacity	0.1 mL/shot (Max. capacity varies with pump spec.)			
Min. discharge pressure	0.2 MPa (Max. pressure varies with pump spec.)			
Applicable pumps	EHN-B/C-11/16/21			
Connection	Ø4×Ø9	Ø4×Ø6	Ø4×Ø9	Ø4×Ø6
Environmental condition	Liquid temp.	0 - 40°C		
	Relative humidity	35 - 85%RH		
	Ambient temp.	0 - 40°C		
	Max viscosity	20mPa·s or below		

- Run the pump with 100% stroke length when the FCM is installed.
- Install a check valve to observe the minimum discharge pressure of 0.2MPa.
- Loosen the hex socket head screw(M3) and adjust the adjusting screw (remove it as necessary) when the pulse output from the FCM is unstable.

A mount dedicated for the EHN Series

This dedicated mount elevates the pump to connect to the suction piping, when said piping is too high.

Model	Material	Application	Height	Note
EHN-B-M	PVC	For replacing an existing pipe	12mm	EHN-B type only
	SUS304		70mm	
EHN-C-M	PVC	For installing a new pipe	12mm	EHN-C type only
	SUS304		70mm	
EHN-B/C-M	PVC	For installing a new pipe	12mm	EHN-B/C type shared
	SUS304		70mm	



Technical data

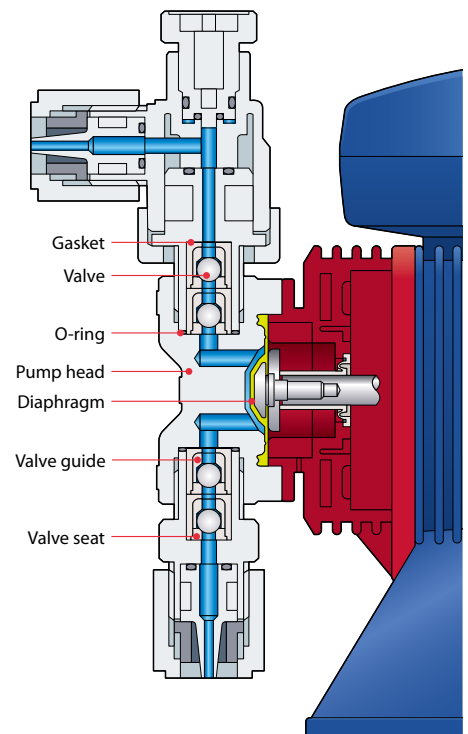
Construction and materials (VC/VH/PC/PH/PP)

Material symbol	VC	VH	PC	PH	PP
Pump head	PVC		GFRPP		
Valve	Alumina ceramic	Hastelloy C276	Alumina ceramic	Hastelloy C276	Alumina ceramic
Valve seat	FKM	EPDM	FKM	EPDM	PCTFE
Valve guide	PVC		GFRPP		
Gasket	PTFE				
O-ring	FKM	EPDM	FKM	EPDM	FKM
Diaphragm	PTFE+EPDM (EPDM of diaphragm is not wet-end.)				

Construction and materials (FC/SH)

Material symbol	FC	SH
Pump head	PVDF	SUS316
Valve	Alumina ceramic	Hastelloy C276
Valve seat	PCTFE	SUS316
Valve guide	PVDF	SUS316
Gasket	PTFE	
O-ring	-	
Diaphragm	PTFE+EPDM (EPDM of diaphragm is not wet-end.)	

PVC: Transparent polyvinyl chloride
 FKM: Fluor rubber
 EPDM: Ethylene-propylene-diene-methylene
 PCTFE: Polychlorotrifluoroethylene
 PTFE: Poytetrafluoro ethylene
 PVDF: Poly vinylidene fluoride



Pump identification (VC/VH/PC/PH/PP)

EHN - B 11 VC M K R - NAE

- Drive unit code** (Average power consumption)
 B: 20W
 C: 24W
- Diaphragm effective diameter**
 11: 10mm
 16: 15mm
 21: 20mm
 31: 30mm
 36: 35mm
- Wet-end material code**
 VC, VH, PC, PH, PP
- Connection**
 M: Multi tube connection
Connection hose dia. (in mm)
 Ø4 × Ø9, Ø4 × Ø6 (11/16/21)
 Ø8 × Ø13, Ø9 × Ø12 (31/36)
 PVC braided hose (Standard)
 • Teflon or polyethylene hose (Special specification)
- Air vent**
 Blank: Provided
 K: Not provided
 • 31/36 (VC/VH)R only
- Controller**
 R: Standard
 YN: Digital/Analogue correspondence
- Special configuration**
 NAE: Automatic air vent
 55: High compression pump head, etc.

Pump identification (FC/SH)

EHN - B 11 FC 2 R

- Drive unit code** (Average power consumption)
 B: 20W
 C: 24W
- Diaphragm effective diameter**
 11: 10mm
 21: 20mm
 31: 30mm
 36: 35mm
- Wet-end material code**
 FC
 SH
- Connection hose dia.** (in mm)
 Pump type **FC** 2: Ø4 × Ø6 6: Ø10 × Ø12
SH 9: Rc 1/4
- Controller**
 R: Standard
 YN: Digital/Analogue correspondence

Specifications of pump

(VC/VH/PC/PH/PP)

Model		EHN-B11	EHN-B16	EHN-B21	EHN-B31	EHN-C16	EHN-C21	EHN-C31	EHN-C36
Max. discharge capacity	mL/min	38	65	100	230	80	130	270	450
	mL/shot	0.05 - 0.11	0.09 - 0.18	0.14 - 0.28	0.32 - 0.64	0.09 - 0.22	0.14 - 0.36	0.30 - 0.75	0.50 - 1.25
Max. discharge pressure	MPa	1.0	0.70	0.40	0.20	1.0	0.70	0.35	0.20
Stroke rate	spm	1 - 360							
Stroke length		50 - 100% (0.5 - 1.0mm)				40 - 100% (0.5 - 1.25mm)			
Connection (Hose dia.)	mm	Ø4×Ø9, Ø4×Ø6			Ø8×Ø13, Ø9×Ø12	Ø4×Ø9, Ø4×Ø6		Ø8×Ø13, Ø9×Ø12	
Power voltage		AC100 - 240V 50/60Hz single phase							
Air vent		Provided			Provided/Not Provided	Provided		Provided/Not Provided	
Accessory	Check valve	CAN-1			CAN-2-L	CAN-1		CAN-2-L	
	Braided hose	Ø4×Ø9 or Ø8×Ø13, made in PVC / 3m							

• The maximum discharge capacity of each model represents the figure when the pump is pumping clean water at maximum discharge pressure, rated voltage, ambient temperature, and 360 spm with stroke length 100%.

• 0.12MPa or more discharge pressure is needed to prevent over feeding (0.05MPa or more for the EHN-B31 and C36).
If the discharge pressure is at or below the required MPa, install a check valve or back pressure valve.

Operating condition: Liquid temperature range is 0 to 60 °C(0 to 40 °C for VC/VH)
Ambient temperature range is 0 to 40 °C

(FC/SH)

Model		EHN-B11	EHN-B21	EHN-C21	EHN-C31	EHN-C36
Max. discharge capacity	mL/min	38	100	130	270	410
	mL/shot	0.05 - 0.11	0.14 - 0.28	0.14 - 0.36	0.30 - 0.75	0.46 - 1.14
Max. discharge pressure	MPa	1.0	0.40	0.70	0.35	0.20
Stroke rate	spm	1 - 360				
Stroke length		50 - 100% (0.5 - 1.0mm)			40 - 100% (0.5 - 1.25mm)	
Connection	(FC) mm	Ø4×Ø6			Ø10×Ø12	
	(SH) mm	Rc 1/4				
Power voltage		AC100 - 240V 50/60Hz single phase				
Air vent valve		SH: Standard accessories, FC: Not included				
Accessory		FC: BVC (Back pressure valve), SH: CS-1S (Check valve)				

• The maximum discharge capacity of each model represents the figure when the pump is pumping clean water at maximum discharge pressure, rated voltage, ambient temperature, and 360 spm with stroke length 100%.

Operating condition: Liquid temperature range is 0 to 60 °C (on condition that liquid quality is not changed by freezing, viscosity change, or slurry interfusion).

Specifications of controller

Model		R
Operation mode	mode	EXT (Pulse dividing or multiply)
	Mode selection	EXT & START/STOP keys
Control	Setting	· Manual stroke rate 1 - 360spm
		· EXT · Digital input operation Multiply 1:n n=1 - 999 Diving n:1 n=1 - 999
	Setting method	3 operating keys
	Stop	No voltage contact, Open collector (Make off/Make on can be selected by changing controller setting)
Display		4-digit LCD
Input	Pulse	No voltage contact, Open collector
	Stop	No voltage contact, Open collector
Output	Sensor power	-
Power voltage		AC100 - 240V 50/60Hz single phase

Model		YN ^{Note}
Operational/control function		Manual, EXT (DIV/MULT/ANA), STOP, FCM, Priming
	Manual	1 - 360spm
Operation	EXT	Multiply 1:n n=1 - 999 Diving n:1 n=1 - 999 Analogue Input 0 - 20mA, Set point 1 and 2
	Alarm setting	PA time OFF 1 - 60 min AL time OFF 1 - 60 min RE time OFF 1 - 60 min, 1 - 60 sec
Output		After PA time (during 360spm operation)/ After AL time (during operation stop)/ After PA time (through AL time and operation stop)/ At each pump shot
	Input	Sensor power voltage 12VDC at 20mA Pulse (FCM flow checker), Open collector Pulse (MULTI/DIV), No voltage contact, Open collector STOP, No voltage contact, Open collector
	Analogue	0 - 20mA
Keypad lock		Available
Power voltage		100 - 240VAC 50/60Hz single phase

Note: The FCM flow checker is available with B11/16/21 and C16/21 types.

